

REMARKS

Claims 1-20 remain in the application and stand rejected. Reconsideration of the rejection is respectfully requested in light of the following reasons.

Amendment to the Specification

The specification has been amended to correct a typographical error noted in the last office action. Applicant thanks the Examiner for his thorough review of the application.

Claim Rejections -- 35 U.S.C. § 102 (Rawlings)

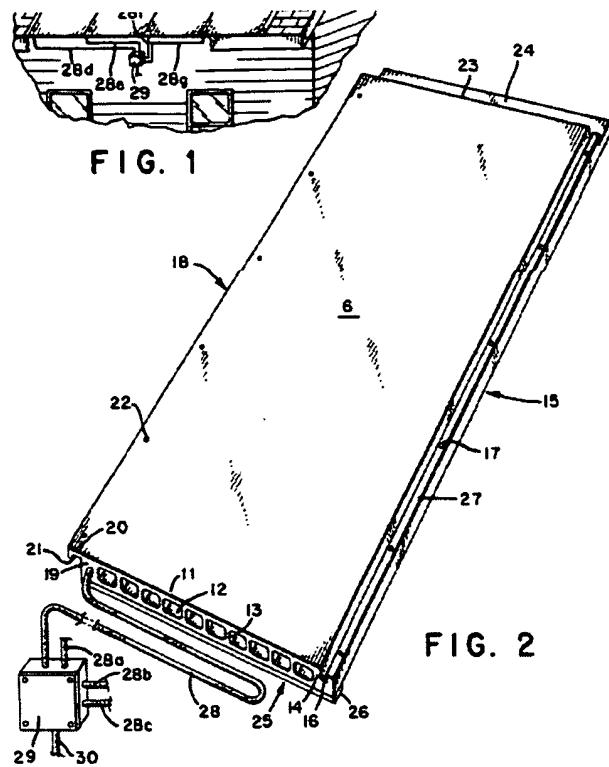
Claims 1, 4-7, 10-13, and 15-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,338,369 to Rawlings et al. ("Rawlings"). The rejection is respectfully traversed.

To anticipate a claim, a reference must include all the limitations of the claim. As will be demonstrated below, Rawlings does not teach or suggest at least one limitation of each rejected claim.

A. CLAIMS 1, 7, 10, and 11

Claim 1 recites: "a first set of frame members forming a frame of a first photovoltaic module, each frame member in the first set having a plurality of air vents within a perimeter of each frame member and having a mounting portion configured to allow for attachment to a roof of a dwelling." The plain language of claim 1 thus requires a set of frame members to form a frame of the photovoltaic module, with **each frame member** in the set of frame members having (a) plurality of air vents and (b) mounting portion for attachment to a roof. Among other advantages besides superior cooling compared to conventional photovoltaic module frames, such as set of frames simplify manufacturing, shipping, and assembly.

Rawlings FIG. 2, cited in the last office action, is reproduced below for ease of discussion.



As shown in FIG. 2, Rawlings' photovoltaic module frame includes elements 14, 15, 18, and 23. Element 14, by itself, cannot be a "set of frame members" (i.e., plural) forming a frame of the module 6. Element 14 works with the elements 15, 18, and 23 to frame the module 6. However, as shown in FIG. 2, only the member 14 has a panel surface 12 (read as "vents" in last office action). At least element 15 does not have a surface 12. In contrast, claim 1 requires **each member** of the set of frame members have a plurality of air vents. Therefore, it is respectfully submitted that claim 1 is patentable over Rawlings.

Claim 1 is also patentable over Rawlings for requiring the mounting portion to be on each member of the set of frame members. In Rawlings, there is no disclosure that element 23 or 14 has a mounting portion for attaching the frame set to a roof. In fact, it is highly unlikely that element 23 has a mounting portion such as that shown in element 15 given that element 23 needs a projection 24 that serves as a skirt.

Therefore, it is respectfully submitted that claim 1 is patentable over Rawlings.

Claims 7, 10, and 11 depend on claim 1 and are thus patentable over Rawlings at least for the same reasons that claim 1 is patentable.

B. CLAIM 4

Claim 4 recites that the mounting portion of **each frame member** (from claim 1) has an outer lip facing an exterior of the frame for roof attachment. In Rawlings, at least element 14 (the one with the surface 12) and element 23 do not have the recited mounting portion. The last office action cites to edge 27, which is but on single member 15 that does not even have a plurality of air vents.

C. CLAIM 5

Claim 5 requires at least two frames of photovoltaic modules and air flow through air vents of the frames. While Rawlings states that its frames may be installed vertically, it is respectfully submitted that two of Rawlings' frames do not allow for air flow through air vents of the two frames. This is because Rawlings does not disclose a set of air vents in element 23, which is opposite the element 14. There is no teaching in Rawlings that such air vents are present in element 23, which instead includes a skirt 24.

It is to be noted that the plain language of claim 5 requires air flow **through air vents in the frames**, not just under the frames as the last office action seems to suggest.

D. CLAIM 6

Claim 6, which depends on claim 5, requires a mounting hardware attaching outer lips of two frame members to a roofing plane. Rawlings FIGS. 3, 3B, and 4 show an edge view of two installed modules. Since the profiles are with respect to element 14, it is respectfully submitted that the profiles show a horizontal installation and thus cannot meet the limitations of claim 5. That is, when horizontally installed, air cannot flow from a surface 12 of one module to another surface 12 of another module. There are no surfaces 12 on the sides of Rawlings' element 15 (see Rawlings FIG. 2).

Further note that Rawlings cannot possibly meet the limitations of claim 6 when its modules are vertically installed because their mounting hardware needs to be mounted along element 15.

E. CLAIMS 12-17

Similar to claim 1, claim 12 is patentable over Rawlings at least for reciting: “a rectangular frame **surrounding** and supporting the photovoltaic module, the frame having a plurality of air vents...on all sides of the frame” (emphasis added). As explained above, Rawlings only includes a surface 12 (“air vents”) on one side of the photovoltaic module frame.

Claims 13 and 15-17 depend on claim 12 and are thus patentable over Rawlings at least for the same reasons that claim 12 is patentable.

F. CLAIMS 18-20

Claim 18 is patentable over Rawlings at least for reciting: “installing the first and second photovoltaic modules on a roof such that air flows **through frame members of the first photovoltaic module and into frame members of the second photovoltaic module.**” As explained above, Rawlings does not have a surface 12 (“air vents”) on opposing elements; the surface 12 is only on element 14, not on element 23. That is, element 23 does not have an air vent that allows air to **flow through it**, let alone through frame members of two photovoltaic modules.

Claims 19 and 20 depend on claim 18 and are thus patentable over Rawlings at least for the same reasons that claim 18 is patentable.

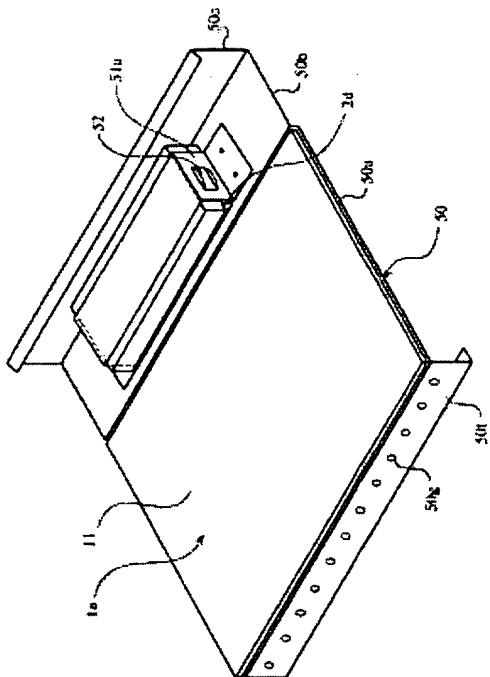
Claim Rejections -- 35 U.S.C. § 102 (Uchihashi)

Claims 12-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,951,785 to Uchihashi et al. (“Uchihashi”). The rejection is respectfully traversed.

A. CLAIMS 12-17

Claim 12 is patentable over Uchihashi at least for reciting that the plurality of air vents and the mounting portion are on all sides of the frame, which surrounds and supports the photovoltaic module. Uchihashi FIG. 25, cited in the last office action, is reproduced below for ease of discussion.

Fig. 25



As shown in Uchihashi FIG. 25, holes 50g are only on side of Uchihashi's frame 50. The holes 50g do not surround the photovoltaic module 11 as required by claim 12.

Claims 13-17 depend on claim 12 and are thus patentable over Uchihashi at least for the same reasons that claim 12 is patentable.

B. CLAIMS 18-20

Claim 18 is patentable over Uchihashi for reciting that "air flows **through** frame members of the first photovoltaic module and into frame members of the second photovoltaic module" (emphasis added). The portions of Uchihashi cited in the last office action, FIGS. 13, 16, and 26, show frames without a plurality of air vents. In the

cited portions, air flows under the frame members by way of a single notch 10C. In contrast, claim 18 requires a plurality of air vents in each of the two frames.

Even in the embodiment of FIG. 25, Uchihashi still cannot meet the limitations of claim 18 as the holes 50g are only on 50f. That is, when installed on a roof, the frame 50 would be tilted with the member 50f angled with the holes 50g, but the opposite end 50C would be flushed down on the roof (see Uchihashi FIG. 21).

Claims 19 and 20 depend on claim 18 and are thus patentable over Uchihashi at least for the same reasons that claim 18 is patentable.

Claim Rejections -- 35 U.S.C. § 103 (Uchihashi and Rawlings)

Claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchihashi in view of Rawlings. The rejection is respectfully traversed.

There are three requirements to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation to modify a reference or to combine references. Second, there must be a reasonable expectation of success. Third, the prior art reference or combined references must teach or suggest all the claim limitations. See MPEP § 2143.

A. CLAIMS 1, 4-10, and 11

As explained above, the plain language of claim 1 requires a set of frame members to form a frame of the photovoltaic module, with **each frame member** in the set of frame members having (a) plurality of air vents and (b) mounting portion for attachment to a roof. As noted in the last office action, Uchihashi does not disclose a plurality of air vents in each frame member. Neither does Rawlings. Rawlings discloses a surface 12 only on one side of the frame – element 14. The other elements, surely element 15 as shown in FIG. 2, do not have a surface 12.

Uchihashi does not disclose air vents on each frame member of its photovoltaic frame. Rawlings does not disclose air vents on each frame member of its photovoltaic module frame. The combination of Uchihashi and Rawlings thus cannot possibly

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disclose air vents on each frame member of a photovoltaic module frame, let alone a mounting portion on each frame member.

Therefore, claim 1 is patentable over the combination of Uchihashi and Rawlings. Claims 1, 4-10, and 11 depend on claim 1 and are thus patentable over the combination at least for the same reasons that claim 1 is patentable.

B. CLAIMS 2 and 3

Claims 2 and 3 require the mounting portion on each frame module to have both an outer lip and an inner lip. The last office action cites to Uchihashi FIGS. 11, 15, and 17 in support of the rejection. FIG. 11 does not show an outer and inner lip on a frame member. Neither does FIG. 15. FIG. 17 shows leading edge 32c engaged to claw 21c. Claw 21c, however, is part of the **inverter** 2 (not a roof). There is nothing in FIG. 17 that shows a mounting portion for roof attachment. A roof is not even shown in FIG. 17.

Conclusion

For at least the above reasons, it is believed that claims 1-20 are in condition for allowance. The Examiner is invited to telephone the undersigned at (408)436-2112 for any questions.

If for any reason an insufficient fee has been paid, the Commissioner is hereby authorized to charge the insufficiency to Deposit Account No. 50-2427.

Respectfully submitted,
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